

PHYS 100

Physical Science

Fall 2009

10-10:50 MWF; T R 10-11:50

Collier Hall, Room 134

3 Sem. Hours

**Instructor: Warner K. Brown
Louis M. Collier Hall
Room 130 (First Floor)
Phone: 318.670.6409**

Office Hours: Office hours will be posted on the instructor's door.

Mission Statement

SUSLA, an institution within the Southern University system, seeks to provide a quality education for its students, while being committed to the total community. This Institution prepares students for career in technical and occupational fields; awards certificates and associate degrees; and offers courses and programs transferable to other colleges and universities. Dedicated to excellence in instructional and community service, this open enrolment institution promotes cultural diversity, provides development and continuing education, and seeks partnerships with business and industry.

Course Description:

Physical Science 100, 3 hrs. credit

An introductory course in the basic concept of physical science. Topics include measurements, motion, forces, energy, mechanics, matter, waves and heat.

TEXTBOOK

Title: Focus on Physical Science
Author: Heimler Price

Prerequisites: Math 133

Required Materials

Each student must purchase the current edition of the textbook, which is in the Bookstore. Students are also asked to obtain some type of notebook to be used for physics notes, problems and assignments. A calculator would be most useful to you for use in problem solving. This mandatory and will save some time and minimize mathematical errors.

GOAL/OBJECTIVES

The course content is designed:

1. To satisfy the requirements for the Associate of Applied Science in Electronics Technology.
2. To satisfy the requirements for programs in Allied Health.
3. To provide a science course for all university students to satisfy science electives.

SUSLA Student Learning Outcomes

(SLO 1) Writing and oral communications:

Students will be able to communicate effectively in verbal and written language, use a variety of information resources and supporting technologies to differentiate content from style of presentation, and to suite content and style to the purpose of communication.

(SLO 2) Scientific and quantitative reasoning:

Students will be able to locate, identify, collect, organize, analyze, and interpret data and use mathematics and the scientific method of inquire to make decisions where appropriate.

(SLO 3) Critical analysis and reasoning:

Students will be able to arrive at reasoned and supportable conclusions using sound research techniques, including inference, analysis, and interpretation.

(SLO 4) Technological competency:

Students will be able to use computer technology and appropriate software applications to produce documentation, quantitative data presentations, and functional graphical presentations appropriate to various academic and professional settings.

(SLO 5) Information literacy:

Students will be able to identify, locate, and effectively use information from various print and electronic sources.

(SLO 6) Leadership and Deployment (Department)

Course Objectives

In keeping with the ideas that the student should be fully aware of his desired performances at the end of this learning experience, the student must demonstrate the following objectives with at least 75% proficiency on a written examination, class discussion, or special report:

1. Without the use of references, students' will, on problem solving exercises and examination, make conversion in the Metric Systems and also conversions from the English System to Metric System. (SLO 2,3)
2. Without the use of references, on an examination, students will be able to define terms dealing with motion and forces. (SLO 1,3)
3. Without the use of references, on an examination, students will work problems and define concepts involving energy and work. (SLO 1,2,3)
4. With the use of the textbook, on an exercise, students will discuss the concept of impulse, momentum, and collisions. (SLO 1,5)

Student Learning Outcomes:

At the conclusion of this course, students will be able to:

1. List the three measurement systems.
2. Define speed, velocity, acceleration, and mass.
3. Identify the laws of motion.
4. Calculate scientific problems using decimals, scientific notation, and formulas.
5. Identify various formulas that relate to basic physical concepts.
6. Define energy and work.
7. List the concepts of the work-energy theorem.

GENERAL INFORMATION

Method of Instruction

1. Lecture
2. Discussion
3. Demonstration
4. Conference

Methods of Evaluation

1. Quizzes
2. Examinations
3. Homework Assignments
4. Special Reports
5. Grading

Grading for this course is based upon the standard point system. During the semester, the student will have the opportunity to gain the maximum number of points through the methods of evaluation listed above. Based on the number of points, the final grade utilizes the following criteria:

- 90 – 100 = A
- 80 - 89 = B
- 70 - 79 = C
- 60 - 69 = D
- 59 or below = F

Also, class attendance alone will not constitute a passing grade, but may be used when assigned a specific value set up at the beginning of the course. Also, the scale might be curved down due to class performance.

COURSE CONTENTS: UNITS OF STUDY

1. Physical Quantities and Units
 - a. Standards and Units
 - b. Conversions
 - c. Precisions and Significant Figures
 - d. Vectors
 - e. Force
 - f. Problem Solving
2. Equilibrium of a Particle
 - A. Equilibrium – Newton's First Law
 - B. Newton's Third Law of Motion
 - C. Idealized Models
 - D. Friction
3. Motion on a Straight Line
 - A. Motion
 - B. Average Velocity
 - C. Instantaneous Velocity
 - D. Acceleration
 - E. Free Falling Bodies
4. Newton's Second Law, Gravitation
 - A. Mass
 - B. System of Units
 - C. Universal Gravitation
 - D. Mass and Weight
5. Motion in a Plane
 - A. Motion in a Plane
 - B. Velocity in a Plane
 - C. Acceleration
 - D. Motion of a Projectile
 - E. Circular Motion
 - F. Centripetal Force
 - G. Earth's Rotation

6. Work and Energy

- A. Work
- B. Kinetic Energy
- C. Potential Energy
- D. Conservative and Dissipative Forces
- E. Power

7. Impulse and Momentum

- A. Impulse and Momentum
- B. Collisions
- C. Inelastic Collisions
- D. Recoil
- E. Rocket Propulsions